

of milestone schedules until the Commission completes action on an applicant's feeder link assignments.^{65/}

For the same reasons, Iridium urges the Commission to reject Constellation's proposal that the Commission adopt a "flexible" milestone framework.^{66/} The Commission should not permit the 2 GHz service rules process to be used as a pretext to relieve Big LEO licensees of their existing milestone obligations – or to permit them to warehouse spectrum for a system that would serve as "follow-on" to an already licensed system that itself has yet to be implemented. The Commission's milestones should only be of sufficient flexibility to allow the Commission to take into consideration an event or process beyond the control of the licensee.^{67/} Otherwise, they should be strictly enforced. Both the Boeing and Constellation proposals run contrary to the very purpose that the milestones are intended to serve: ensuring that licensed systems are implemented and services delivered to the public as expeditiously as possible.

IV. SERVICE RULES

A. Regulatory Treatment

As noted in its Comments, Iridium supports the Commission's proposal to classify as non-common carriage the space segment component of 2 GHz MSS systems and the related gateway and TT&C earth stations used to support those systems.^{68/} As indicated, the same legal principles that supported the Commission's decision to forego common carrier regulation for Big LEO systems apply with equal

^{65/} Boeing Comments at 25-27.

^{66/} Constellation Comments at 25-26.

^{67/} See Iridium Comments at 37 & n.69.

^{68/} *Id.* at 31.

force to 2 GHz MSS systems. All of the commenting parties that address this issue share the same view.^{69/} Accordingly, the Commission should adopt its tentative conclusion.

B. System License and License Term

With respect to system license and license term issues, Iridium recommended that the Commission consider awarding licenses for a term longer than 10 years in order to accommodate more realistically the significant capital outlays that technologically-advanced MSS systems require and enable operators to recover that investment. Alternatively, Iridium urged the Commission, at a minimum, to adopt a renewal expectancy for 2 GHz MSS licensees.^{70/}

Several of the other applicants in this proceeding join in Iridium's call for a longer license term. Boeing and Inmarsat both ask the Commission to extend the term to 15 years,^{71/} while ICO requests a term of 12 years coupled with a renewal expectancy.^{72/} Globalstar argues in favor of a 20-year license term.^{73/} Virtually all of these commenters share Iridium's view that such an extension is warranted, and indeed necessary, in order to attract the billions of dollars in investment necessary to support the time, labor, and expense involved in construction and launch of technologically-advanced MSS

^{69/} See Constellation Comments at 23-24, Globalstar Comments at 30-32, ICO Comments at 15-16, Inmarsat Comments at 16, TMI Comments at 9.

^{70/} Iridium Comments at 33.

^{71/} Boeing Comments at 37-38, Inmarsat Comments at 16-17 (requesting a term of 15 years or the actual lifetime of the satellite on a case-by-case basis).

^{72/} ICO Comments at 16, 23-24.

^{73/} Globalstar Comments at iii, 32-35.

systems.^{74/} Moreover, as Iridium observed, increasing the initial term of the license is simpler and less administratively burdensome than the policy of liberally granting *ad hoc* extensions that the Notice appears to contemplate.

The Commission clearly possesses the authority to award licenses to 2 GHz MSS operators for a term longer than ten years. The record furnished by the commenters provides a sound policy basis for the Commission to exercise that authority. Accordingly, Iridium renews its request that the Commission adopt a license term for 2 GHz MSS licensees in excess of 10 years and adopt a renewal expectancy for these systems.

C. Enhanced 9-1-1 and Related Issues

In response to the Commission's inquiry, the 2 GHz MSS applicants generally took the position that the Commission should not adopt enhanced 9-1-1 ("E911") and related safety and distress service requirements, including specific position location capabilities for 2 GHz MSS systems.^{75/} In contrast, several other commenters urged the Commission to adopt such requirements, failing to appreciate the difficult technical and logistical problems that would first have to be overcome.^{76/}

^{74/} See Globalstar Comments at 33, ICO Comments at 16. Iridium supports Globalstar's proposal that the Commission modify for 2 GHz MSS the language used in operators' blanket satellite licenses to permit operators to launch replacement satellites that are not "technically identical" to the initial space stations deployed. Globalstar Comments at 35. This proposal is consistent with Globalstar's observation that a longer license term could encourage technical innovation as operators seek increasingly efficient ways to use spectrum with replacement satellites. *Id.* at 33.

^{75/} See Constellation Comments at 26-27, Globalstar Comments at 41-44; ICO-SPs Comments at 42-44; TMI Comments at 10-11; see *also* Comments of the Satellite Industry Association, filed June 24, 1999, at 2 ("SIA Comments"). *But see* Celsat Comments at 28-30.

^{76/} See Comments of APCO [Association of Public-Safety Communications Officials-
(continued...)]

As Iridium observed in its Comments, the Commission has specifically refrained from imposing on MSS providers caller identification, standardized position information, and automatic routing requirements for distress and safety or disaster response communications – first in establishing the Big LEO service,^{77/} and again, in its E911 proceeding.^{78/} It has done so out of the recognition that: (1) MSS providers' system architecture and the international nature of MSS service present unique technical, operational and legal issues that impact MSS operators' ability to provide these safety and distress functions; (2) no international standards exist; and (3) the adoption of MSS E911 requirements is premature.^{79/}

^{76/} (...continued)

International, Inc.], filed June 24, 1999, at 2-3 ("APCO Comments"), Comments of the National Telecommunications and Information Administration, filed June 24, 1999, at 15-17 ("NTIA Comments"), Comments of the United States Coast Guard, filed June 24, 1999, at 4-6 ("USCG Comments"); see also Celsat Comments at 28-30.

^{77/} *Big LEO Report and Order*, 9 FCC Rcd 5936 at 6012-13.

^{78/} *Revision of the Commission's Rules To Ensure Compatibility with Enhanced 911 Emergency Calling Systems*, 11 FCC Rcd 18676 (1996) ("E911 Order").

^{79/} In 1996, in the E911 Order, the Commission specifically recognized that:

. . . adding specific [emergency calling] regulatory requirements to MSS may impede the development of the service in ways that might reduce its ability to meet public safety needs. For example, coordination with international standards bodies will be necessary for international calls, and the current state of technology requires more obstacles to be overcome in the case of MSS carriers than for terrestrial carriers. . . . [W]e do not adopt schedules or other requirements for them here. The carriers and other interested parties are urged to develop emergency access systems as soon as is feasible to speed eventual implementation of effective emergency access and to minimize the costs of re-engineering facilities.

Id. at 18718.

As recently as late 1997, the Commission reiterated and confirmed this conclusion, stating that:

The commercial MSS industry is still in its infancy. . . . [I]t is our policy . . . not to impose specific regulatory requirements on certain classes of CMRS providers that have not yet fully developed their commercial services. . . . [W]e might revisit our decision if these various services develop into a mobile public telephone service like cellular or broadband PCS.

* * * *

[E]mergency service requirements for global MSS systems should be developed in an international forum to take into account compatibility and consistency with international standards, and to avoid burdening United States MSS licensees with a patchwork of different requirements. . . . We will revisit this issue if the MSS industry develops into a commercial mobile telephone service similar to cellular and broadband PCS, and still does not provide reliable public safety access to MSS customers.^{80/}

In its Comments, Iridium observed that these conclusions remain equally true today, and, thus, it remains premature to require that MSS terminals provide E911 and related capabilities.^{81/} With only one exception, Celsat, the other 2 GHz MSS applicants and their affiliates expressed similar concerns.^{82/} Constellation, for example, taking

^{80/} *Revision of the Commission's Rules To Ensure Compatibility with Enhanced 911 Emergency Calling Systems*, 12 FCC Rcd 22665, 22707, 22708 (emphasis added).

^{81/} Iridium Comments at 40.

^{82/} See Constellation Comments at 26-27 (no nationwide plan for routing calls from remote areas or for recovering the costs of a satellite provided service on a national basis); Globalstar Comments at 41-44; ICO-SPs Comments at 42-44; TMI Comments at 10-11; SIA Comments at 2. The lone MSS provider to support imposition of such requirements is Celsat. See Celsat Comments at 28-30. However, it should be observed that Celsat, unlike the majority of other applicants with proposals pending in this proceeding, proposes only a regional service and, thus, need not contend with the problem of harmonizing such requirements with a global service.

For the reasons discussed in Iridium's Comments, Iridium disagrees with Celsat's
(continued...)

note of MSS operators' nationwide service footprint, observed that "it does not appear that the relevant safety authorities have developed a nationwide plan to insure that there is a responsible agency for every point within the country, or a method for recovering the costs of a satellite provided service on a national basis."^{83/} Globalstar also noted the problem MSS operators would confront in identifying an appropriate public safety answering point ("PSAP") to which to refer an E911 call from a subscriber located in certain remote areas and the additional problems created by the fact that many of an MSS system's subscribers will be originating calls from outside the United States where no international 911 designation presently exists.^{84/}

The weight of the comments clearly demonstrates that it would be premature and inappropriate to burden MSS operators with obligations to provide services that may not be technically achievable or legally appropriate for all MSS providers. Rather, the Commission should encourage the industry to work together and with the international community to establish global emergency calling standards that are technically

^{82/} (...continued)

assertion that E911 requirements are "fully consistent with the technological capabilities of MSS systems," Celsat Comments at 30; however, Iridium does agree with Celsat's apparent general position that, if such requirements are adopted, "all 2 GHz MSS applicants [should be required to] provide such services regardless of their stage of development or whether they are designed to complement terrestrial systems." *Id.* at 30. The Commission must apply any such material service requirements to all authorized systems on a uniform basis to avoid conferring an unfair competitive advantage on some operators at the expense of others. Indeed, noting the Commission's questionable authority to impose such expensive and burdensome requirements on systems for which it does not award space segment licenses (*i.e.*, the LOI filers), Iridium cautioned the Commission that it should consider the potential competitive detrimental impact that imposition of such obligations would have on the design and operations of U.S.-licensed MSS systems relative to their non-U.S.-licensed competitors that do not face such requirements. Iridium Comments at 41.

^{83/} Constellation Comments at 27.

^{84/} Globalstar Comments at 42-43.

achievable and address the variety of international legal issues and restrictions that have been developed for emergency calling. Only when such standards are in place can the Commission appropriately undertake a proceeding to adopt such requirements for MSS operators.^{85/}

D. Service to Unserved Communities

While strongly supporting the Commission's policy to encourage delivery of cost-effective telecommunications services to persons in unserved, underserved, rural, or economically isolated areas, Iridium, in its Comments, nevertheless urged the Commission not to base any significant or substantive 2 GHz MSS rules or policies on an individual service provider's pledge to serve such populations.^{86/} Specifically, Iridium observed that virtually all of the 2 GHz MSS space system operators licensed in this proceeding will be capable of providing service to such remote populations simply by virtue of the ubiquitous coverage that is the hallmark of satellite service.

Because all 2 GHz MSS space segment licensees will be capable of providing service to unserved and underserved populations, Iridium noted, it would be inappropriate for the Commission to use this consideration as a criterion for resolving

^{85/} ICO urges only that first generation 2 GHz MSS systems not be required to provide E911 or other safety and distress services ostensibly to put new MSS systems on a competitive par with existing Big LEO MSS systems. ICO Comments at 19. By contrast, Boeing suggests that its proposed service is distinguishable from other 2 GHz MSS service proposals and should not be subject to any E911 or distress and safety services "unless the inclusion of such services is appropriate." Boeing Comments at 19. Iridium has already explained why it is premature to impose such requirements on any 2 GHz MSS systems, whether first or second generation. Iridium Comments at 38-41. However, as previously noted, if the Commission nevertheless decides to impose such requirements, fairness and competitive neutrality compel the Commission to apply them uniformly to all entities authorized to provide 2 GHz MSS service in the United States.

^{86/} Iridium Comments at 41-43.

expansion band coordination disputes under the Flexible Band Plan approach^{87/} or as a basis to relieve space segment licensees of their milestone obligations. This is particularly true because the entity offering service in the U.S. is the domestic service provider -- not the space station licensee.^{88/} The other 2 GHz MSS applicants articulated similar views.^{89/}

Iridium generally supports the proposals of some commenters to create incentives for service providers or earth segment operators. For example, the suggestion of several commenters that the Commission use the Universal Service Fund to provide cost supports to make MSS service affordable for underserved populations while keeping it economically sustainable for the service provider seems sensible.^{90/}

E. Trafficking

In its Comments, Iridium supported adoption of an anti-trafficking rule for 2 GHz MSS operators similar to that now applicable to Big LEO operators but only in the event

^{87/} *Id.* at 42. As Commissioner Powell observed, such a policy would essentially create an ill-advised new comparative criterion for distinguishing between applicants. For these reasons, the Commission should reject Celsat's proposal that delivery of service to unserved and underserved areas constitutes grounds for a preference to access to expansion spectrum. See Celsat Comments at 29.

^{88/} Moreover, as observed above in the discussion of the Commission's Flexible Band Plan proposal, the grant of such expansion band access as an incentive to further a narrow domestic policy goal is unlikely to persuade a foreign administration to grant a commensurate increase in spectrum to the licensee in another country. Indeed, it could serve as an invitation to foreign administrations also to begin exacting similar domestic policy demands in exchange for spectrum access in their countries, thus subjecting U.S. licensees to an array of burdensome costs and potentially incompatible requirements that may be largely or even wholly unrelated to the quality or characteristics of MSS service.

^{89/} See Constellation Comments at 27-28, Globalstar Comments at 44-46, ICO Comments at 20; see *also* ICO-SPs Comments at 44-46.

^{90/} See Globalstar Comments at 44-45, SIA Comments at 2-3, MCHI Comments at 26-27.

that the Commission determines that such a rule could be applied with equal force and effect to non-U.S. licensed systems as well as to those licensed by the Commission.^{91/}

Only two other commenters – both of them LOI filers – addressed the trafficking question.^{92/} ICO appears to validate the Commission's concern relative to the harmful potential of applicants that seek spectrum only for the purpose of speculation rather than to provide service to the public.^{93/} However, ICO suggests that the Commission need not adopt the rule if it adopts a Negotiated Entry band plan approach.^{94/} TMI does not object to an anti-trafficking rule^{95/} and appears to concede that the Commission does possess the jurisdiction, pursuant to its authority to license foreign operators to serve the United States, to impose conditions on the sale of such non-U.S. licensed systems.^{96/}

In light of this record, and the important contribution such a rule could make in preventing the waste or warehousing of spectrum, Iridium renews its request that the Commission adopt for all 2 GHz MSS systems authorized to serve the U.S. an anti-trafficking rule similar to that now applied to Big LEO licensees. In addition, Iridium also reiterates its recommendation that the Commission condition the respective authorizations of Inmarsat and its affiliate ICO to prohibit the former from transferring any of its spectrum to the latter, by any means, unless the Commission first determines

^{91/} Iridium Comments at 43.

^{92/} ICO Comments at 21, TMI Comments at 11.

^{93/} ICO Comments at 21.

^{94/} *Id.*

^{95/} TMI Comments at 11.

^{96/} *Id.*

(1) that all global MSS systems not affiliated with either ICO or Inmarsat have received equitable access to spectrum in the foreign markets served by either of these entities, and (2) that the transfer serves the public interest.^{97/} Collectively, Inmarsat and its affiliate ICO control the vast majority of MSS spectrum available globally today. Given the degree of common control that exists between Inmarsat and ICO, there is a real danger that the two affiliated entities will combine resources to the detriment of competition in the U.S. and globally.

F. Exclusionary Arrangements

The Commission's proposal to extend to the 2 GHz MSS service its existing rule prohibiting U.S. satellite licensees from entering into exclusive service arrangements with foreign administrations drew generally strong support from commenters.^{98/} However, ICO opined that formal promulgation of such a rule is unnecessary because, ICO argued, the WTO Agreement on Basic Telecommunications Services and the FCC's *Report and Order* in IB Docket No. 96-111 (the "DISCO II" proceeding)^{99/} already embrace such requirements.^{100/}

In its Comments, Iridium supported the Commission's proposal concerning exclusionary agreements and specifically advocated modification of the rule to bring

^{97/} Iridium Comments at 43.

^{98/} See Boeing Comments at 35, Globalstar Comments at 41, Inmarsat Comments at 18, MCHI Comments at 27.

^{99/} *Amendment of the Commission's Regulatory Policies to Allow Non-U.S. Licensed Space Stations to Provide Domestic and International Satellite Service in the United States*, 12 FCC Rcd 24094 (1997) (*Report and Order* in IB Docket No. 96111, CC Docket No. 93-23, RM-7931, and File No. ISP-92-007) [*"DISCO II Report and Order"*].

^{100/} ICO Comments at 22.

non-U.S. licensed operators such as ICO within its scope.^{101/} MCHI also urged the Commission to adopt a rule covering LOI filers as well as U.S. licensees.^{102/} As these comments reflect, the Commission's DISCO II decision does address this issue. Nevertheless, Iridium believes that a formal rule, backed by appropriate administrative enforcement powers, would meaningfully strengthen the legal framework protecting free global commerce in telecommunications services. Notwithstanding the obligations that may bind WTO member countries, the Commission should adopt a rule (as it has in other services) that is binding on licensees and others authorized to serve the U.S. The ability of a licensee, disadvantaged by another operator's anti-competitive relationship with a foreign administration, to seek redress from the Commission against the offending operator is likely to be more effective at preventing such conduct in the long run.

V. MOBILE EARTH STATION LICENSING

Iridium supported the Commission's proposal to license 2 GHz MSS mobile earth stations in the same manner as it presently licenses earth terminals for Big LEO systems.^{103/} In addition, Iridium noted that it is a signatory to the GMPCS-MoU and supports the Commission's proposal in IB Docket No. 99-67 to continue to use blanket licensing for GMPCS earth terminals.^{104/}

^{101/} Iridium Comments at 45-46.

^{102/} MCHI Comments at 27.

^{103/} Iridium Comments at 46-47.

^{104/} *Id.* at 47. See also Reply Comments, filed July 21, 1999, by Iridium LLC, in IB Docket No. 99-67, RM No. 9165 (*Amendment of Parts 2 and 25 to Implement the Global Mobile Personal Communications by Satellite (GMPCS) Memorandum of Understanding and Arrangements*, et al.) at 7-8.

(continued...)

The majority of applicants' comments also support the Commission's proposals. Globalstar, for example, supports adoption of the Big LEO rules for licensing mobile earth terminals as they may be modified in the GMPCS proceeding.^{105/} Constellation, ICO, and Inmarsat do the same.^{106/} In light of this support, the Commission should adopt its proposal to authorize 2 GHz MSS mobile earth terminals using blanket licenses.

VI. INTERSERVICE SHARING

In its Comments, Iridium noted its agreement with the Commission's expressed intention to resolve any remaining issues concerning the relationship between incumbent licensees in the 2 GHz band and the MSS operators that will soon displace them within the context of ET Docket No. 95-18.^{107/} Iridium briefly reiterated its support in that proceeding for an incumbent relocation plan that would relocate all FS and BAS incumbents out of the band as of a date certain prior to the commencement of any 2 GHz MSS operations in the band.^{108/}

^{104/} (...continued)

^{105/} Globalstar Comments at 41.

^{106/} Constellation Comments at 29, ICO Comments at 22-23, Inmarsat Comments at 17. TMI also stated its support for the blanket licensing of 2 GHz MSS earth station components operating in the U.S., although it hastened to observe that not all networks would necessarily be GMPCS compliant and, therefore, the Commission should not mandate such compliance. TMI Comments at 11. Iridium incorporates herein by reference the Comments and Reply Comments that it recently filed in IB Docket No. 99-67.

^{107/} Iridium Comments at 52.

^{108/} *Id.* As discussed above, the relocation schedule also affects the implementation milestones.

To the extent that these relocation and sharing measures are relevant to the issues in this proceeding, Iridium cautioned the Commission to exercise care that the framework it adopts to address them in ET Docket No. 95-18 is competitively neutral. Iridium believes that the framework it proposed in that proceeding meets the test of competitive neutrality and, moreover, provides a valuable degree of certainty both for incumbents seeking reimbursement and for MSS operators seeking clear spectrum. Iridium's proposals are a matter of record and need not be repeated here.

With respect to the question of out-of-band emissions limits, Iridium expressed support for the Commission's proposal to apply the domestic emission limits of Section 25.202(f) to all 2 GHz MSS systems operating in the United States but disagreed with what it understood to be the Commission's proposal to establish within Section 25.216 new limits (including interim limits) on out-of-band emissions for terminals operating in the 1610-1660.5 MHz band.^{109/} Relative to the first issue, there seems to be general support for the Commission's proposal. Boeing affirmatively supported the application of Section 25.202(f), and Globalstar indicated that it had no objection to the proposal, although it asserted that the better practice would be to adopt the more universal standards specified by ETSI and the ITU for 2 GHz MSS.^{110/} For the reasons stated in its Comments, Iridium continues to object to the adoption of any interim standards on emissions limits for MSS terminals.

VII. FEEDER LINK ISSUES

Iridium limited its Comments to issues relevant to its proposal to use frequencies in the Ka band for its MSS feeder links. In their comments, several parties have raised

^{109/} Iridium Comments at 53.

^{110/} See Boeing Comments at 38, Globalstar Comments at 48-50.

concerns generally directed to feeder links in this band or specifically directed at Iridium's proposal. In addition, other comments relative to the use of the lower Ku-Band for feeder downlinks advocated certain proposals carrying more far-reaching policy implications potentially affecting Iridium and other satellite operators.

A. Iridium's Feeder Link Operations

In its Comments, the Personal Communications Industry Association ("PCIA") addresses the use by MSS operators of portions of the Ka-Band allocated for use by LMDS, including the 29.1-29.25 GHz portion requested for Iridium's feeder uplinks.^{111/} PCIA concedes that NGSO MSS systems are allocated to operate on a co-primary basis with LMDS operations in this band and that LMDS operators' activities are restricted to hub-to-subscriber communications, but it nevertheless asserts that the FCC should take all necessary steps not to expand rights of satellite carriers in these bands so as not to impede LMDS operators' ability to make effective technical and business use of the band.^{112/}

Iridium believes that PCIA's concerns are misplaced. The Commission has not proposed in this proceeding to expand the rights of MSS operators in this segment of the band. Iridium will conduct its operations consistent with the Commission's rules and existing allocations. Iridium expects LMDS operators to do the same. As PCIA concedes, LMDS operations are restricted in this band, and the Commission should not

^{111/} Comments of the Personal Communications Industry Association, filed June 24, 1999, at 1 ("PCIA Comments"). Bosch Telecom, Inc. ("Bosch") also submitted comments concerning MSS use of portions of the Ka-Band allocated for LMDS use; however, Bosch's comments were limited only to the 27.5-28.35 GHz section of the band. Comments of Bosch Telecom, Inc., filed June 24, 1999, at 1.

^{112/} PCIA Comments at 3, 4.

take steps in this proceeding to expand the rights of LMDS operators at the expense of MSS licensees.

The Fixed Wireless Communications Coalition ("FWCC") also advances some general concerns relative to MSS feeder links in bands currently occupied by FS operators.^{113/} The FWCC states that the Commission must constrain deployment and design of MSS feeder link earth stations to protect FS operations already confronting a scarcity of spectrum.^{114/} Specifically, FWCC proposes that the Commission: (1) limit the total number of feeder link earth stations; (2) perhaps require various MSS providers to collocate their feeder link earth stations; (3) site feeder link earth stations away from population centers; (4) require use of the largest feasible antenna; (5) shield feeder link earth stations (or use "virtual shielding"); and (6) set standards for earth station spectrum efficiency of at least 16 QAM or 4 bits/second/hertz.^{115/}

The Commission need not and should not take any action on these recommendations in this proceeding to adopt service rules and policies for 2 GHz MSS. Spectrum coordination and sharing can be, and indeed has been, effectively handled in allocation proceedings involving feeder link frequencies as well as in private negotiations among the industries and individual operators. FWCC can raise these issues in the relevant allocation proceedings and its members can raise them in coordination negotiations.

^{113/} Comments of the Fixed Wireless Communications Coalition, filed June 24, 1999 ("FWCC Comments").

^{114/} *Id.* at 4.

^{115/} *Id.* at 4-5.

Two of the entities with an economic interest in this proceeding, Hughes Communications Galaxy, Inc., and Hughes Communications, Inc. (collectively, "Hughes"),^{116/} reiterate their objection to the waiver request that Iridium submitted in connection with the feeder link proposal of its MACROCELL application.^{117/} Iridium's feeder link request was placed on public notice before Iridium's MACROCELL application appeared on public notice.^{118/} Hughes acknowledges that it previously filed a Petition to Deny the MACROCELL application yet demands the right to have another opportunity to comment further if the waiver request is resolved in a separate proceeding.^{119/} Iridium cannot stop Hughes from littering the Commission with filings; however, there is no need to consider the Hughes Comments in this service rules proceeding.

Finally, Hughes' subsidiary PanAmSat submitted comments in support of the Commission's proposal to dispose of Iridium's, Celsat's, and Globalstar's feeder link requests within the context of a second Ka-Band processing round.^{120/} In addition,

^{116/} It must be noted that Hughes is an investor and a "partner" in ICO. See <http://www.ico.com/about/> (identifying Hughes Network Systems, Inc., and Hughes Space and Communications International, Inc., as Partners in ICO, and Hughes Electronics (USA) as an Investor in ICO). Indeed, as the Commission is aware, Hughes is a member of the ICO-SPs group, see note 40, *supra*, that is also a commenting party in this proceeding.

^{117/} Joint Comments of Hughes Communications Galaxy, Inc., and Hughes Communications, Inc., filed June 24, 1999, at 3 ("Hughes Comments").

^{118/} See Public Notice, *Satellite Policy Branch Information: Satellite Applications Accepted for Filing in the Ka-band*, Report No. SPB-106, 13 FCC Rcd 8020 (DA 97-2202, released October 15, 1997); see also Public Notice, *Satellite Policy Branch Information: Satellite Applications and Letters of Intent Accepted for Filing in the 2 GHz Band*, Report No. SPB-119 (released Mar. 19, 1998).

^{119/} Hughes Comments at 3 & n.9.

^{120/} Hughes' third filing in this proceeding is filed by its subsidiary, PanAmSat.
(continued...)

PanAmSat asserts that the Commission should adhere to the Ka-Band plan and reject any application that deviates from it. Iridium disagrees that a processing round is needed to dispose of its feeder link application. As Iridium stated in its Comments:

While it may be appropriate (indeed, even necessary) to address Celsat's application in such a processing round because it proposes a variance from the Ka-Band plan that raises significant coordination issues relative to incumbent and applicant GSO FSS systems, the Iridium application presents no such difficulties. On the contrary, Iridium's proposal is entirely consistent with the existing Ka-Band plan, and Iridium is only seeking to use spectrum that has already been allocated for NGSO MSS feeder links and, more specifically, much of which has already been licensed for use with the IRIDIUM[®] system. Iridium's MACROCELL application creates no meaningful spectrum coordination issues whatsoever.

If, however, the Commission believes that Iridium's feeder link proposal must be considered in the second Ka-Band processing round, such consideration should be limited to the feeder link spectrum not already in use by the IRIDIUM[®] system. That spectrum has been coordinated with Motorola. Thus, the MACROCELL system application can be granted with the feeder link frequencies 19.4-19.6 GHz and 29.1-29.25 GHz unconditionally, with the additional frequencies granted conditionally, pending resolution of the second Ka-Band processing round.^{121/}

B. Radio Astronomy Issues

While they do not directly address Iridium's proposed feeder links, the Comments filed by the National Academies' Committee on Radio Frequencies ("CORF") are of concern to Iridium.^{122/} CORF's Comments appear to be only addressed

^{120/} (...continued)

Comments of PanAmSat Corporation, filed June 24, 1999, at 5. It should be noted that PanAmSat is a subsidiary of Hughes, see <http://www.hughes.com/>, which, as previously noted, is an investor and a "partner" in ICO.

^{121/} Iridium Comments at 28-29.

^{122/} Comments of the National Academies' Committee on Radio Frequencies, filed June (continued...)

to protecting radio astronomy from interference resulting from out-of-band emissions emanating from Boeing's and TMI's proposed feeder downlinks in the lower Ku-Band. However, CORF's comments advance proposals that, if adopted, could establish an unfavorable precedent with implications for satellite operations in other bands.

Specifically, CORF proposes that, if the Commission permits satellite feeder downlinks in the lower Ku-Band, it also should require those downlink operations to protect Radio Astronomy Service ("RAS") and Earth Exploration-Satellite Service ("EESS") observations from interference at the values set forth in ITU-R Recommendation 769-1,^{123/} thus effectively making the recommendation the "definition" of harmful interference, and hence the required level of protection, for radio astronomy in the passive research bands (10.6-10.7 GHz), which are adjacent to the proposed feeder link bands (10.7-11.7 GHz). However, such establishment of a particular value as a definition for harmful interference is contrary to the long-standing U.S. policy of not quantifying harmful interference.

Harmful interference is only decided on a case-by-case basis and the interference must "seriously degrade, obstruct or repeatedly interrupt" a radio communication service.^{124/} In other words, it must happen in practice and cannot be simply specified on paper. In most cases, the ITU-R Recommendations only quantify "permissible interference," which should be construed by a satellite system designer as a minimum level of interference to expect and not a value that will never be exceeded.

^{122/} (...continued)

²⁴, 1999 ("CORF Comments"). See also NTIA Comments at 19-20.

^{123/} CORF Comments at 1.

^{124/} Radio Regulations, No. S1.169 (Geneva, 1998).

With respect to the Radio Astronomy Service, ITU-R Recommendation RA-769-1 addresses “detrimental” interference.

Moreover, even assuming that U.S. policy did allow for the quantification of harmful interference, ITU-R Recommendation 769-1 would not provide an appropriate basis to define the necessary interference protection levels from MSS terminals. RA.769-1 does not even make a passing reference to NGSO satellites. Rather, it starts with the case of a terrestrial interferer, and calculates a value of detrimental interference, then it makes an extension of this value to derive another value for the case of satellites in geostationary orbit. The case of NGSO satellites is not considered.

CORF also calls for the Commission to specify in the Rules a requirement for MSS operators to use satellite filters that can provide at least 50 dB of suppression of out-of-band emissions.^{125/} This would introduce yet another extremely dangerous precedent for the Commission by having it dictate to operators not only the standards that they must meet but also the method by which they must achieve them. It would be far more practical, and less intrusive, for the Commission to condition authorizations accordingly and then permit operators to protect radio astronomers from harmful interference in any way they see fit.

VIII. AMS(R)S IN THE 2 GHz MSS BAND

The preponderance of comments filed in this proceeding support the position advocated by Iridium in its Comments with respect to Boeing’s proposal to provide AMS(R)S in the 2 GHz MSS bands. In its Comments, Boeing repeatedly asserts that a “critical need” exists for the service it proposes to offer. Indeed, Boeing contends that

^{125/} CORF Comments at 4.

the need for its proposed system is “undisputed.”^{126/} However, the comments demonstrate that the contrary is true. In fact, the National Telecommunications and Information Administration (“NTIA”) expressly contradicts Boeing’s contention, stating that no demonstrated need exists at present for AMS(R)S in the 2 GHz band.^{127/}

Celsat, Constellation, Globalstar, ICO, Inmarsat and TMI, all join Iridium in opposing accommodation of Boeing’s AMS(R)S proposal in the 2 GHz MSS band, generally raising concerns similar to those Iridium expressed in its Comments, *i.e.*, that no appropriate allocation exists to support Boeing’s proposed service and that Boeing’s proposal is inherently inconsistent with the objectives that the Commission sought to achieve when it reallocated sections of the 2 GHz band for generic MSS use in the first place.^{128/} Globalstar adds that it would not object to Boeing’s proposal, provided that Boeing “seeks no extraordinary protection for the service within the intrasystem coordination requirements that are adopted for the spectrum it shares with other licensees.”^{129/} Boeing contends that it will not require such special protections for its system, claiming that “priority . . . certainly is not necessary”^{130/} and that it does not need “inter-network preemptive capabilities.”^{131/} If Boeing’s claims are in fact true,

^{126/} Boeing Comments at 7; see also *id.* at 2, 3.

^{127/} NTIA Comments at 18.

^{128/} See Celsat Comments at 27-28, Constellation Comments at 4-5, Globalstar Comments at 4-6, ICO Comments at 5, Inmarsat Comments at 12-14, TMI Comments at 3.

^{129/} Globalstar Comments at 6. This is also TMI’s position. TMI Comments at 3.

^{130/} Boeing Comments at 5.

^{131/} *Id.* at 6.

Iridium might be persuaded to concur with Globalstar. However, the record in this proceeding casts doubt on Boeing's claims.

Boeing's Comments fail to address adequately the concerns raised by others. Indeed, Boeing's Comments concede that most of the necessary international standards and guidelines that would enable it to effectuate its proposal are not yet in place.^{132/} Moreover, even ARINC, an apparent supporter of Boeing's proposal acknowledges that:

. . . aeronautical service by satellite is feasible, but changes in the current allocations will be necessary for the system fully to serve the public interest. Because of the international nature of aviation, amendments to the Table of Frequency Allocations of the International Telecommunication Union (ITU) will also be required. Also, Part 87 of the Rules will have to be amended to provide for licensing of airborne mobile earth terminals . . . if safety-of-flight service is involved.^{133/}

Without such changes in international allocations and international standards, ARINC observes, Boeing's "new system would not likely achieve the consensus necessary to support carriage of the equipment."^{134/}

Even more telling is ARINC's later observation that:

[t]he concept of priority and real-time preemptive access has been degraded since first proposed by the Federal Aviation

^{132/} *Id.* at 7-13. In fact, Boeing concedes that most of the work that has been done to date to authorize AMS(R)S outside of its customary bands has been directed to the 1.5/1.6 GHz bands and is not directly applicable to the 2 GHz band. *Id.* at 8-9. Boeing also attempts to bolster its claim that its AMS(R)S should be authorized in the 2 GHz MSS band by relying on a recent ICAO decision approving the IRIDIUM[®] system for delivery of such services. See *id.* at 6. However, these proceedings involving the IRIDIUM[®] system are likewise inapposite. Unlike the present 2 GHz MSS spectrum that Boeing seeks to utilize, the L-Band spectrum which is the focus of Iridium's efforts (1.6 GHz) already includes a specified allocation for AMS(R)S.

^{133/} ARINC Comments at 2 (emphasis added).

^{134/} *Id.* at 5.

Administration (FAA) and adopted by the FCC. . . . If AMS(R)S is to function in this [2 GHz MSS] spectrum, the band assignment plan should provide aviation with adequate exclusive spectrum or assurance that it would be able to preempt the spectrum of non-AMS(R)S systems to meet its communication requirements.^{135/}

In its Comments, Iridium observed that Boeing's proposal presents significant technical and national policy questions that, while deserving of close attention, are not suitable or appropriate for resolution in the instant proceeding.^{136/} Iridium noted that these issues warrant attention in a separate inquiry; however, Iridium stated its opposition to operations, commercial or otherwise, in the bands assigned to the Global Positioning System ("GPS") that would compromise the integrity and accuracy of the GPS. Accordingly, Iridium urged the Commission to deny as well the radionavigation aspects of Boeing's application. The comments appear to indicate that Boeing has not yet obtained the agreement of the relevant governmental bodies to its proposed use of the GPS L1 band.

Boeing claims, for example, that it "has been able to assure government users of the band that Boeing's [augmentation] service is fully compatible with existing systems."^{137/} However, while Boeing may have made assurances, the comments suggest that the relevant government users have not yet been assured. Notably, NTIA states that "detailed discussions" with Department of Defense ("DoD") and the Federal Aviation Administration ("FAA") would be necessary before it could concur with Boeing's

^{135/} *Id.* at 4 (emphasis added).

^{136/} Iridium Comments at 30.

^{137/} Boeing Comments at 15.

proposal to deliver Navigational Augmentation Service ("NAS") in the Radionavigation Satellite Service frequencies used by GPS.^{138/}

At present, Boeing's proposal is limited very narrowly to provision of aeronautical and navigational services. Iridium has understood from published reports and Boeing's own filings that Boeing is not interested in providing general MSS services. As outlined in Iridium's Comments and those of other 2 GHz MSS applicants, Boeing's proposal, as presently formulated, is inconsistent with the purposes for which the Commission originally allocated 2 GHz spectrum for use by MSS. If Boeing chooses to modify its application to specify a broader range of MSS services consistent with the purposes of the Commission's 2 GHz MSS allocation, then the Commission could consider accommodating it in this proceeding. Absent such a change, however, the Commission should reject Boeing's and ARINC's requests for an AMS(R)S designation and adoption of related protections for the frequencies in the 2 GHz MSS band,^{139/} and Boeing's application should be dismissed.

IX. CONCLUSION

Iridium demonstrated in its Comments that engineering solutions exist that enable the Commission to assign spectrum to all of the pending applicants in the 2 GHz MSS band and that the Traditional Band Plan represents the best method for effectuating that assignment. However, Iridium also stated that, under present conditions, the U.S. band assignment framework and licensing scheme for 2 GHz MSS systems will not suffice to ensure the healthy emergence of robust competition in the U.S. and globally. Iridium urged the Commission to work with European authorities and

^{138/} NTIA Comments at 18-19.

^{139/} *Id.* at 3.

other countries to ensure that U.S. global MSS systems will not be frozen out of the 2 GHz band outside the U.S. and to ensure that all MSS systems have equitable access to spectrum. As the foregoing illustrates, the comments filed by the other applicants in this proceeding support Iridium's position and echo the need for prompt and effective action by the Commission to secure accessibility of 2 GHz MSS spectrum worldwide.

The comments also lend further support to Iridium's recommendations relative to the Commission's proposed service rules and policies to govern 2 GHz MSS in the U.S., especially relative to the application of implementation milestones, license term, E911 requirements, and exclusionary arrangements. The Commission has the opportunity before it to implement a band plan and service rules that can foster healthy competition.

Accordingly, for the reasons set forth in Iridium's Comments and herein, Iridium respectfully urges the Commission to adopt the Traditional Band Plan and service rules for licensing 2 GHz MSS systems consistent with the views expressed herein.

Respectfully submitted,

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